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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/672,247	09/26/2003	Charles M. Milliren	34563US1	8704

116 7590 11/16/2005

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EXAMINER	
VO, HAI	

ART UNIT	PAPER NUMBER
1771	

DATE MAILED: 11/16/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/672,247	MILLIREN ET AL.	
	Examiner	Art Unit	
	Hai Vo	1771	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *06 September 2005*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-9,11,13 and 16-31* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-9,11,13 and 16-31* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

1. The claim objections are withdrawn in view of the present amendment.
2. The art rejections Morimoto et al (US 2002/0168496) are withdrawn because Morimoto does not teach a viscoelastic foam.
3. The art rejections over Donzis (US 4,513,449) are maintained.
4. The art rejections over Krent et al (US 5,423,087) are maintained.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 1-4, 6-9, 11, 13, and 16-31 are rejected under 35 U.S.C. 102(b) as being anticipated by Donzis (US 4,513,449) as evidenced by Dera et al (US 4,101,983) substantially as set forth in the 04/12/2005 Office Action. With regard to newly added claims 30 and 31, Donzis teaches a structure comprising a foam substrate and a fabric having a polyurethane coating that encloses the foam substrate (figure 4 and column 7, lines 55-60). The polyurethane coating is a non-porous layer which would inherently have 0% porosity. The foam substrate is a flexible, open cell polyurethane foam (column 5, lines 47-48). The foam substrate is an open cell polyurethane foam having a density of from 3 to 16 lb/ft3 (column 5, lines 5-6, 29-30). Dera evidences that the semi-rigid polyurethane foam having a density of 2 to 7 lb/ft3 (column 46-47). Therefore, Donzis discloses a semi-rigid open cell polyurethane foam.

7. Claims 1-9, 11, 13, and 16-31 are rejected under 35 U.S.C. 102(b) as being anticipated by Krent et al (US 5,423,087) as evidenced by Dera et al (US 4,101,983) substantially as set forth in the 04/12/2005 Office Action. With regard to newly added claims 30 and 31, Krent teaches a body protective device comprising a foam substrate and a cap layer of a thermoplastic material at least partially enclosing the foam substrate (figures 8 and 9). The foam substrate is a flexible, open cell polyurethane foam having a density from 2 to 4 lb/ft3 (column 7, lines 7-8). Dera evidences that the semi-rigid polyurethane foam having a density of 2 to 7 lb/ft3 (column 46-47). Therefore, the flexible open cell polyurethane foam disclosed by Krent is also a semi-rigid open cell polyurethane foam.

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

9. Claim 5 is rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Donzis (US 4,513,449) as evidenced by Dera et al (US 4,101,983) substantially as set forth in the 04/12/2005 Office Action.

Response to Arguments

10. The art rejections over Donzis have been maintained for the following reasons. Applicants argue that Donzis does not teach a viscoleastic polyurethane foam because the two foams having densities within or overlapping density ranges disclosed in the present application, and that if two foams have the same density and one is a viscoelastic foam, then the other also must be a viscoelastic foam. The examiner directs Applicants to the articles "Information in Flexible Polyurethane foam" and "Specialty foams and composites". Both articles evidence that viscoelastic foam is a type of open cell, flexible polyurethane foam which has ability of absorbing shock. This is exactly what is taught in the Donzis reference. Donzis teaches the use of the flexible open cell polyurethane foam for shock absorbing as shown in figure 9. Therefore, it is not seen that the flexible open cell polyurethane foam could not have been a viscloelastic foam so as to have ability to absorb shock as the viscoelastic foam of the present invention. Further, Applicants' attention is directed to column 4, lines 63-65 of the Donzis reference. Donzis teaches that the flexible, open cell polyurethane foam is a reticulated foam meeting the generic definition of the viscoelastic foam as disclosed in Applicant's specification (see paragraphs no. 21, 22 and 23). Hence, it is believed by the examiner that the flexible open cell, reticulated polyurethane foam of Donzis would be of a viscoelastic foam to sufficiently achieve the shock absorbing capability.

Applicants argue that since there is no basic to presume that density and foam rigidity are per se related, it is wrong to say that a prior art foam must be

semi-rigid simply because it has or overlaps with a density range for the foam of the present invention. The examiner disagrees. While it is true that the density is not only one factor contributing the overall rigidity of a foam, it is known in the foam art that the density itself reflects the degree of the foam rigidity, i.e., the higher the density is, the more rigid the foam is. Additionally, the examiner takes the position that the term "semi-rigid" is relative and the present claims do not ascertain to what degree the claimed product is semi-rigid. What may be considered to one skilled in the art as "semi-rigid" may be considered by another skilled in the foam art as "rigid" and vice versa. Therefore, the examiner takes the position that Donzis broadly discloses a "semi-rigid" foam because the Donzis foam has a density within the range disclosed in the specification.

Applicants argue that Donzis does not teach or suggest the protective layer having at least two zones of different rigidity based on the relative density of vent holes provided through the skin in each of the zones. The examiner disagrees. Donzis teaches the fabric comprising a plurality of vent holes 32 along the edge 30 as shown in figure 4. Likewise, the fabric has two portions of different rigidity based on the relative density of vent holes provided through the fabric in each of the portion. The portion of the fabric which is closed to the edge 30 is less rigid than the portion of the fabric which is far away form the edge. Since claim 11 does not require the densities of vent holes provided in the first zone and the second zone are greater than zero, the claimed subject matter

does not exclude the protective structure of Donzis. Accordingly, the art rejections are sustained.

11. The art rejections over Krent have been maintained for the following reasons. Applicants argue that Krent does not teach a viscoleastic polyurethane foam because the two foams having densities within or overlapping density ranges disclosed in the present application, and that if two foams have the same density and one is a viscoelastic foam, then the other also must be a viscoelastic foam. The examiner directs Applicants to the articles "Information in Flexible Polyurethane foam" and "Specialty foams and composites". Both articles evidence that viscoelastic foam is a type of open cell, flexible polyurethane foam which has ability of absorbing shock. This is exactly what is taught in the Krent Reference. Krent teaches the use of the flexible open cell polyurethane foam for shock absorbing as shown in figure 1, column 6, lines 6-7, and column 7, lines 7-8. Therefore, it is not seen that the flexible open cell polyurethane foam could not have been a viscloelastic foam so as to have ability to absorb shock as the viscoelastic foam of the present invention. Hence, it is believed by the examiner that the flexible open cell, polyurethane foam of Krent would be of a viscoelastic foam to sufficiently achieve the shock absorbing capability.

Applicants argue that since there is no basic to presume that density and foam rigidity are per se related, it is wrong to say that a prior art foam must be semi-rigid simply because it has or overlaps with a density range for the foam of the present invention. The examiner disagrees. While it is true that the density

is not only one factor contributing the overall rigidity of a foam, it is known in the foam art that the density itself reflects the degree of the foam rigidity, i.e., the higher the density is, the more rigid the foam will be. Additionally, the examiner takes the position that the term "semi-rigid" is relative and the present claims do not ascertain to what degree the claimed product is semi-rigid. What may be considered to one skilled in the art as "semi-rigid" may be considered by another skilled in the foam art as "rigid" or flexible and vice versa. Therefore, the examiner takes the position that Krent broadly discloses a "semi-rigid" foam because the Krent foam has a density within the range disclosed in the specification.

Applicants argue that Krent does not teach or suggest the protective layer having at least two zones of different rigidity based on the relative density of vent holes provided through the skin in each of the zones. The examiner disagrees. Krent teaches the protective layer having at least two zones of different rigidity based on the relative density of vent holes provided through the skin in each zone as shown in figure 14. Accordingly, the art rejections are sustained.

Conclusion

12. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory

action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hai Vo whose telephone number is (571) 272-1485. The examiner can normally be reached on M,T,Th, F, 7:00-4:30 and on alternating Wednesdays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Terrel Morris can be reached on (571) 272-1478. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Hai Vo

HAI VO
PRIMARY EXAMINER